

**California Environmental Protection Agency
Innovation Initiative
Environmental Management System Project**

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Executive Summary

Finding effective and innovative ways to achieve superior environmental protection is the primary goal of the Cal/EPA Innovation Initiative Environmental Management System (EMS) Project. Governor Gray Davis formally established the Cal/EPA EMS Project in 1999 by signing Assembly Bill 1102. The Cal/EPA EMS Project is designed to inform public policy makers and engage stakeholders in determining whether and how the use of an EMS:

- (1) increases public health and environmental protection and
- (2) provides better public information than existing regulatory requirements.

In order to determine if an EMS provides these benefits, Cal/EPA will conduct up to eight pilot projects. Two public hearings are planned for May 2000 in order to receive public comment on the proposed pilot projects and the evaluation criteria and monitoring parameters.

Cal/EPA is proposing the following pilot projects:

- (1) Anheuser-Busch in Fairfield,
- (2) Wastewater treatment facilities (Central Marin Sanitation Agency in San Rafael and San Diego Waste Water Department, Operation and Maintenance Division),
- (3) IBM Corporation in San Jose,
- (4) Lockheed Martin Aeronautics Company (formerly the Skunk Works) in Palmdale,
- (5) Metal finishing companies (Artistic Plating in Anaheim and Gene's Plating in Los Angeles),
- (6) Pentel of America, Ltd. in Torrance, and
- (7) Vineyards and wineries (Davis Bynum Winery and Benziger Family Winery in Sonoma County).

Data on changes in environmental performance and regulatory compliance, pollution prevention, and stakeholder involvement will be collected and evaluated, as well as information on the types and quality of information available to stakeholders. Cal/EPA reports quarterly on progress to the Legislature and will provide a final analysis by January 1, 2002.

Facilitating the establishment of partnerships between communities, public interest organizations, industry, government, and academia is a major element of the *EMS Project*. Draft pilot selection criteria, descriptions of proposed pilot projects, a model project work plan, data collection, and reporting requirements have been developed with outside stakeholder working groups.

Public involvement and outreach also include a newly created web site, ongoing facilitation of working groups, and participation in the Multi-State Working Group on EMSs.

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Introduction

The mission of the California Environmental Protection Agency (Cal/EPA) is to improve environmental quality in order to protect public health, the welfare of our citizens, and California's natural resources. Cal/EPA will achieve its mission in an equitable, efficient, and cost-effective manner. In order to find more effective and innovative ways to achieve superior environmental protection, Cal/EPA established the *Environmental Management System Project*. Through the evaluation of environmental management systems in pilot projects, community dialogue, and research into other States' initiatives, Cal/EPA hopes to uncover and highlight systems and practices that will provide better environmental performance and lead us toward a more sustainable California.

Purpose of the Environmental Management System Project

The primary goal of the *Cal/EPA Environmental Management System Project* is to find more effective and innovative ways to achieve superior environmental protection. Increasing use of Environmental Management Systems (EMSs) by industry and their use as a part of the regulatory structure by some state governments provides an opportunity to examine the benefits EMSs may bring in protecting and enhancing California's environment.

The EMS Project is designed to inform public policy makers and engage stakeholders in determining whether and how the use of an EMS:

- (1) increases public health and environmental protection and
- (2) provides better public information than existing regulatory requirements.

Approach

In order to determine if an EMS provides these benefits, Cal/EPA will conduct up to eight pilot projects. Data on changes in environmental performance and regulatory compliance, pollution prevention, and stakeholder involvement will be collected and evaluated, as well as information on the types and quality of information available to stakeholders. Quarterly progress reports are submitted to the Legislature, with the final analysis due January 1, 2002.

Success of the *Cal/EPA EMS Project* is dependent on the participation and contributions of all stakeholders. Facilitating the establishment of partnerships between communities, public interest organizations, industry, government, and academia is a major element of the *EMS Project*. For this purpose, Northern and Southern California working groups with representation from these interests have been established by Cal/EPA to give guidance on the *Project*, as well as to the pilot projects in EMS design and implementation.

A Cal/EPA representative chairs the Multi-State Working Group (MSWG) on EMSs, a consortium of 49 member and observer states, which exists to coordinate the efforts of all its participants in improving understanding of EMSs.

Legislative Authority

Governor Gray Davis formally established the Cal/EPA EMS Project in 1999, by signing Assembly Bill 1102. Assembly Bill 1102 was cosponsored by Assembly Members Jackson, Nakano, Correa, Reyes and Senator Sher. The statute codifies and clarifies existing practices in Public Resources Code, Section 71045 et. seq. January 1, 2000 is set forth as the Project's establishment date, and it is due to sunset on January 1, 2002. Appropriation from the State's General Fund provides the revenue to support this work.

Cal/EPA Team

A multi-disciplinary Cal/EPA team administered through the Office of the Secretary manages the EMS Project. Team members from the Air Resources Board, Department of Toxic Substances Control, Integrated Waste Management Board, and State Water Resources Control Board serve as project managers for the pilots.

Background

Over the past 30 years, the first generation of environmental protection laws and regulations have led to dramatic improvements in air and water quality and in waste disposal practices. Most laws, regulations, and environmental agencies have been organized around media (air, water and land) or material type (pesticides, toxic substances and municipal solid waste). Laws and regulations establishing standards for the responsible use, control and discharge/disposal of the various pesticides, hazardous materials and solid wastes have grown in both number and complexity. The logistical, technical, and legal difficulties in monitoring and enforcing these rules have also increased apace. The costs to both "control" pollution and to repair the damage caused by prior practices have increased for both business and government. The result has been much progress, but also a growing volume of prescriptive regulations that are, at times, conflicting or duplicative, and that have, by necessity, focused both regulated organizations and regulatory agencies almost exclusively on keeping pace with updated regulations and on achieving compliance.

Current Environmental Protection Management Technologies and Strategies
Focus on protection of human health Invest in "end-of-pipe" clean up Respond to "command and control" regulation <ul style="list-style-type: none">- Standards or prohibition- Inspection and enforcement- Restoration and set asides Prepare environmental impact statements

Over these 30 years, however, much has changed. California's population, the number of regulated organizations and the production of goods and services have all increased significantly. This has created more sources and greater amounts of both regulated and unregulated materials with potential for environmental impact. For many industries, development time from product concept to market has dropped from years to months or even weeks, each product possibly introducing new hazardous materials and waste streams that regulators must incorporate into the regulatory structure. Environmental aspects and impacts (e.g., global warming, ozone depletion, endocrine disrupters), unrecognized even ten years ago, are creating demands for wide ranging regulation by government and control by industry. There is a growing realization that environmental impacts are not easily contained to a single medium, and that improvement action taken in one medium can cause significant and unintended problems in another. Over this same time period, government's investment in the people, technologies, and process improvements needed to respond to these changes has not kept pace.

Business organizations have also changed, from almost uniform unawareness of, or disregard for, the environmental carrying capacity of the three media and of the impact they create, to a much wider range of demonstrated environmental responsibility. At one extreme are those companies that continue to violate environmental regulations, for which strong and certain enforcement appears to be the main factor influencing environmental behavior. At the other end of the spectrum, leading edge companies have moved beyond compliance to embrace the concepts of sustainability and environmental stewardship. They have redesigned products and production processes to take their environmental performance far beyond regulatory compliance and have also made dramatic improvements in non-regulated environmental aspects. Most have environmental management systems incorporated into all facets of the company operations. They have made public their environmental performance in annual reports and have opened their environmental management processes to public input. There is increasing evidence not only that many environmental improvements save money over the long term, but that environmentally sophisticated companies consistently outperform their competitors in financial markets.

There is a common set of practices that many of these companies have adopted that fall under the heading of "eco-efficiency."

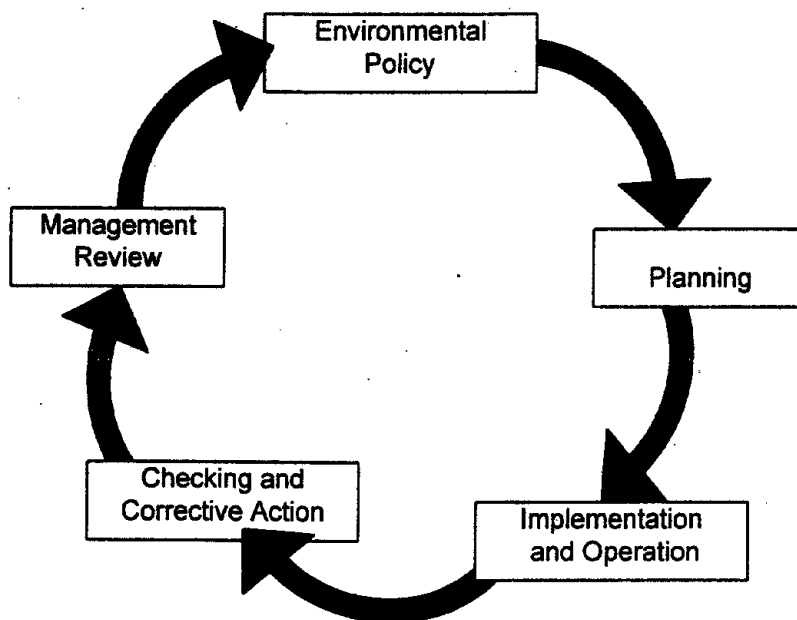
Eco-efficiency Management Technologies and Strategies
<p>Integrate environmental management into the business management system</p> <p>Target significant environmental improvement</p> <ul style="list-style-type: none"> - Regulatory compliance - Reduced material intensity of goods and services - Reduced energy intensity of production and distribution - Enhanced pollution prevention - Enhanced materials recyclability and recycling - Maximized sustainable use of renewable and non-renewable resources - Extended product durability - Increased service intensity of goods and services <p>Publicly report on the results</p>

The broad policy question, which this study seeks to address only in part, is how can regulatory agencies best use their resources to significantly strengthen environmental protection while at the same time partner with businesses and non-government organizations to encourage and recognize "beyond compliance" environmental actions? The California EMS Project is a carefully designed study to answer one part of that question.

Environmental Management System Definition

An environmental management system (EMS) is a process by which an organization's management identifies regulated and unregulated environmental aspects and impacts of its operations, assesses current performance, and develops targets and plans to achieve significant environmental improvements. The EMS may also be expanded to consider both the environmental impacts produced by suppliers of raw materials and parts, as well as the impact of the use of the product or service by the customer. A well designed and implemented EMS results in the integration of environmental management into the organization's overall management system by identifying the policies, environmental targets, measurements, authority structures and resources necessary to produce both compliance with regulations as well as beyond compliance environmental performance.

EMS Continual Improvement Cycle



EMSs embody the “Plan-Do-Check-Adjust” improvement cycle and typically involve:

- developing an environmental policy,
- developing a stakeholder involvement / communication strategy,
- identifying both the regulated and unregulated environmental aspects and impacts of the organization's operations,
- determining supply chain relationships and their environmental aspects and impacts,
- identifying legal, regulatory and contractual environmental requirements as well as environmental issues of concern to the local community,
- identifying current performance and establishing objectives and targets for environmental improvement,
- developing the management structure and identifying the necessary resources and responsibilities to meet the targets,
- initiating training and employee awareness activities,
- creating measures to monitor progress in
 - targeted environmental performance
 - regulatory compliance
 - EMS implementation
- developing an emergency preparedness process,
- initiating pollution prevention activities,
- creating process documentation and control procedures,
- performing an EMS system audit,
- conducting a management review of the audit results,
- taking corrective action to correct identified deficiencies.

When fully and conscientiously implemented, an EMS provides the framework for management to collect information on the organization's impacts on the environment and to turn that knowledge into plans and actions to improve environmental performance and better enable employees to perform their jobs in an environmentally conscious manner.

Implementation of an EMS does not, however, guarantee either improved regulatory compliance or significantly improved environmental performance beyond compliance. Thus, adoption of an EMS is not a substitute for existing regulatory requirements, but has the potential to provide an organization's management with a roadmap for environmental improvement. Certainty that the EMS has accomplished improvement requires both rigorous data collection in the targeted environmental areas and a process to make those results visible to interested parties. The data collection protocols, an integral part of the EMS study, focus on obtaining answers to these concerns.

Scope and Implementation

A description of the scope and implementation of the EMS Project follows. It includes the draft pilot selection criteria, model project work plan elements, data collection, and reporting requirements.

Selection Criteria

The Cal/EPA team has developed draft pilot project selection criteria with suggestions from the regional working groups. In proposing these pilot projects, Cal/EPA has considered the following selection criteria.

- (1) Pilot projects will have an ongoing or planned EMS that can reasonably be expected to produce greater environmental protection than would otherwise be achieved by the existing regulatory process.
- (2) Pilot projects will engage in a multi-media environmental approach (e.g., air, water, solid and hazardous waste).
- (3) Pilot projects will pursue appropriate pollution and waste prevention opportunities.
- (4) Pilot projects will share information learned from EMS implementation with Cal/EPA, regional and/or local working groups, and the public. Pilot projects agree to provide specific data on the goals, implementation, and performance of their EMS as reported in the national and California supplemental data protocols.
- (5) Pilot projects will participate on the Northern or Southern California EMS Working Group.
- (6) Pilot projects will declare to Cal/EPA any current and past (three years) violations cited by environmental regulatory agencies.
- (7) Pilot projects will address known regulatory deficiencies, as required by the appropriate regulatory agency, through their EMS.

- (8) Pilot projects' top management will make a full commitment to participate in the project through a letter of intent.
- (9) Pilot projects will represent diversity in terms of location/geography, size, industry type or sector, environmental impacts, and in the range of EMS maturity.

Cal/EPA is currently proposing the following pilot projects:

- (1) Anheuser-Busch in Fairfield,
- (2) Wastewater treatment facilities (Central Marin Sanitation Agency in San Rafael and San Diego Waste Water Department, Operation and Maintenance Division),
- (3) IBM Corporation in San Jose,
- (4) Lockheed Martin Aeronautics Company (formerly the Skunk Works) in Palmdale,
- (5) Metal finishing companies (Artistic Plating in Anaheim and Gene's Plating in Los Angeles),
- (6) Pentel of America, Ltd. in Torrance, and
- (7) Vineyards and wineries (Davis Bynum Winery and Benziger Family Winery in Sonoma County).

Pilot Project Work Plan Elements

After each pilot project is selected, a Cal/EPA manager is appointed to coordinate the project. Each facility prepares, with the assistance of the Cal/EPA pilot project manager, a project plan that includes the following elements:

- title and approval sheet;
- distribution list;
- project description;
- scope;
- goals and objectives;
- roles and responsibilities;
- project schedule;
- stakeholder involvement;
- quality objectives and criteria for measurement of data;
- data collection, management, and quality assessment.

Data Collection and Reporting Timeline

In coordination with other states, detailed data protocols have been developed to collect standardized information on EMS design and performance. The national data protocols are available for review through a web site link at <http://www.mswg.org>.

In order to answer the questions provided in AB 1102, Cal/EPA is supplementing the national data protocols with a few additional questions. Using these combined protocols, pilot projects will submit information in the following categories:

- environmental performance,
- regulatory compliance,
- use of pollution prevention techniques,
- continual improvement,

- employee involvement,
- involvement of interested parties,
- quality and quantity of information to the public,
- EMS design, and
- EMS costs and benefits.

To determine baseline conditions, pilots will contribute data prior to implementing the EMS. To assess the short-term results subsequent to implementing an EMS, pilots will provide four semiannual updates. Descriptive information about the EMS design will be submitted to evaluate distinguishing EMS features and superior practices.

California is currently collecting performance baseline and EMS design data for existing proposed pilots. Cal/EPA reports quarterly on progress to the Legislature and will provide a final analysis of results by January 1, 2002.

Public Involvement and Outreach

Public and stakeholder involvement and outreach regarding this study include a newly created web site, upcoming public hearings, ongoing meetings of the regional working groups, and participation in the Multi-State Working Group on EMSs.

Web Site

A web site has been created to provide information on the EMS Project and related efforts (<http://www.calepa.ca.gov/EMS/>).

Public Hearing

Two public hearings are planned for May 2000; one in Northern California and one in Southern California, in order to receive public comment on the proposed pilot projects and the monitoring and evaluation parameters. Descriptions of the proposed pilot projects and draft monitoring and evaluation parameters will be provided to the public for comment in April. The public hearing will be noticed at least 30 days prior to the event, through the mail, press releases, and posting on the Cal/EPA web site.

After receiving public comment, Cal/EPA will respond to the general comments and notice the selection of pilot projects and the establishment of evaluation criteria and monitoring parameters.

Working Groups

Northern and Southern California regional EMS working groups—involving community groups, non-governmental public interest organizations, industry, academia, and local, state and federal regulatory agencies—have been established to facilitate dialogue about project design and implementation as well as regional concerns. The working groups are developing a common understanding and knowledge of EMSs through training organized by Cal/EPA and funded by a grant from the U.S. EPA Office of Water. Facility tours and presentations are being provided by proposed pilot organizations. The working groups will be advising pilot organizations on the

development and continual improvement of their EMSs, evaluating the performance of EMSs, and exploring related public policy issues.

The most recent California Working Group meetings were held in March. The purpose of these meetings was to share information on the proposed pilot projects, draft pilot selection criteria, a model project work plan, and draft evaluation criteria and monitoring parameters as an informal review prior to the public hearing.

Participation in Multi-State Working Group on EMSs

In late 1996, representatives of several states met to discuss common interests in EMS, and it became clear that many states, with both Democratic and Republican administrations, were keenly interested in the EMS developments. These states decided to conduct pilot programs to understand the relevancy and value to regulatory programs. From these initial discussions, the Multi-State Working Group on Environmental Management Systems (MSWG) developed, which now lists the membership of forty-nine states, participating or observing, four federal agencies, a substantial number of business, public interest groups, and academic institutions. An open process, involving quarterly meetings and annual workshops, has been established which has strong involvement of public interest groups. More than one hundred organizations are participating as pilot projects in the United States. A national database is being established to support ongoing research on the performance of EMSs.

California chairs the MSWG and is contributing data on environmental performance and EMS design to the national database. California will plan and host the MSWG national workshop in San Diego, June 5-6, 2000. Four hundred participants are anticipated. They will meet to discuss the latest EMS, sustainable development, and innovation projects in the U.S. and internationally.